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APRIL 26.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-six persons present.

A paper entitled "List of Fishes collected by Mr. W. J. Fisher, upon the coasts of Lower California, 1876–77, with descriptions of new species," by W. N. Lockington, was presented for publication.

The death of Dr. J. Dickinson Logan, a member, was announced.

Motility in Plants.—Mr. THOMAS MEEHAN remarked that comparatively little knowledge of motion had been gained since the time of Linnæus. The recent work of Mr. Darwin on the motions of plants, was a valuable contribution to the subject, though confined to motion in roots and leaves. He thought it would serve the cause of science to note that the presence or absence of light in itself could not, as so often assumed, account for all the phenomena of motion. He had made numerous and careful observations, this season, on motility in *Draba verna*, which plant, so far as he knew, had not been observed to have any peculiarities. The petals are usually closed during the early season, though the pedicels are erect in the daytime, drooping so as to form almost a perfect circle at night. These pedicels become erect about three hours after sunrise when there is about twelve hours of sun in the day, commencing to droop at about two o'clock in the afternoon. This diurnal motion in the pedicels continues some days after the petals have fallen, and apparently as long as the silicle continues to grow. Later in the season, on clear days, the petals commence to open early in the morning, contemporaneously with the rising of the pedicel; by the time this was erect, the petals would be nearly expanded. The expansion, when the sun rose at half-past five or six, would be complete by nine A. M. Strange to say, no matter how clearly the sun might continue to shine, the petals commence to close about noon, and by about two P. M., are completely closed.

During the course of his observations, there was a period of four days cloudy, and no attempt at expansion was made. The fourth day, however, was so slightly cloudy, that the eye could scarcely look at the sun through the thin cloudy veil. The amount of absolute light could be little less than on some days earlier in the season, when the sun was wholly unclouded, but still there was no attempt at expansion of the petals. Continued observations seemed to show that not mere light, but clear sunlight, was necessary to the opening of the flower.

One evening there was a heavy thunder shower; the next day was densely cloudy, warm and moist, but the flowers of the *Draba* expanded just as well as under the bright sun of previous days! These facts show that we cannot refer the opening of the flowers either to light or sunlight alone. Mr. Meehan believed that plants not only behaved differently at different times, but in different countries; and as no one, not even Mr. Darwin, seems to have noted the expansion of the petals of the *Draba* in England, it is possible that under those cloudy skies, they do not expand at all. So far as he had noted here, the self-fertilized flowers of the closed Drabas produced seed just as well as the expanded ones, which might possibly be occasionally cross-fertilized by the small sand wasps, which visited the open flowers freely for pollen.

How habits change at times, Mr. Meehan illustrated by specimens of *Lamium amplexicaule*, a common introduced weed in gardens. Dr. Bromfield, in his Flora of the Isle of Wight, notices that the flowers vary in size during the season, but that the earliest ones are the largest. Here it is reversed. The specimens exhibited had already flowered from six verticels, and had mature seeds in many, but the flowers had never expanded in any case. Indeed, very rarely had the closed corollas been produced beyond the calyx. They were essentially cleistogene. As showing how uncertain were the laws influencing this condition, when usually about the end of April, the perfect flowers appeared, some plants would have them a week or more before others alongside produced any. To all appearances, external influences were the same.

As somewhat bearing on the laws of motion, the angle of divergence in branches was referred to. Mr. M. exhibited branches of *Salix caprea.* Normally the branches separated from each other at a very acute angle, but the fertile ament on these branches was pendulous. Under no external influence, so far as we could tell, an individual appears with pendulous branches. This has been increased by grafting, and is known in nurseries as the Kilmarnock weeping willow. But the aments have retained their normal condition as regards the branch. The catkins are erect on the pendulous branches, while pendulous on the erect ones. Morphologically a catkin is but a modified—an arrested—branch, but we see by this that whatever cause induced the change from the normal condition of divergence, it was purely local, and ceased to exist before it reached the arrested branch or ament.

These facts were offered to show that in studying motility in the various parts of plants, it would be well to remember that external causes had but a limited influence, and that in these cases a combination of circumstances often controlled the influences attributed to one. As, therefore, the facts would vary with various observations,—those of one observer sometimes seeming rather to conflict with than to confirm another,—it was too soon to form any just conclusion as to the motive cause. What was desired was not so much these speculations, but an increase in the number of observers, and a correct record of well authenticated facts.

The resignation of Dr. Henry C. Chapman, as a member of the Council was read and accepted.

Jesse S. Walton and Harry Skinner were elected members.

The following was ordered to be published: